REMARKS

Applicant would like to thank the examiner for the detailed office action mailed on September 22, 2006.

Claims 1-34, and 57 are pending. Claims 1-6, 9-14, 17-22, 25-31, 34, and 57 have been rejected. Claims 7-8, 15-16, 23-24, and 32-33 would be allowable if written in independent form.

Claims 2-3, 8, 11, 25, 27, and 33 have been rejected under 35 U.S.C 112, second paragraph, as being indefinite.

Claims 17-25 have been rejected under 35 U.S.C 101 as being directed to non-statutory subject matter.

Claims 1-6, 9-14, 17-22, 25-31, 34 and 57 have been rejected under 35 U.S.C 102(e) as being anticipated by Tsujii (U.S. Patent 7, 079, 189).

Amendments

The amendments are not to be construed as an admission by Applicant of the correctness of the rejection. Claim 1-3, 8, 16-25, 27, 29, and 33 have been amended to overcome the objections under 35 USC §101 and § 112 noted by the examiner.

Request for Reconsideration

Applicant requests reconsideration of the rejection of Claims 1-5, 9-14, 17-22, 25-31, 34, and 57.

Rejection under 35 USC § 101

Claims 17-25 were rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter. In particular, the examiner interprets the

language of these claims and thus asserts that the claims are drawn to an "electromagnetic wave."

Claims 17-25 have been amended as a system to regulate the operation of a device (imaging system).

Applicant respectfully traverses these grounds for rejection for the reasons argued below. Applicant asserts that the invention performs transformation coupled with a tangible result.

The instant invention transforms an article or physical object to a different state or thing. The claims are directed to a computerized system (claims17-25) having, *inter alia*, a processor and storage device for changing the "operating state of a digital radiography detector" from received real world data such as environmental condition data. The claims recite receiving a physical article in the form of information indicative of physical properties and operating parameters of device. The received physical article is transformed to another state or thing in the form of information about "environmental condition data from a digital radiography detector." An example of this transformation is disclosed (emphasis added) in applicant's disclosure at page 13:

> The controllers can use this action of reading the unique identifier as a trigger to switch between modes. The purpose of the activation switch 208 is to use the status of the switch in conjunction with historical or generally statistical data to infer whether the state of the detector is likely to change. The purpose of the indicator 206 is to convey to the user or operator the status of the detector. The environmental condition device 506 monitors the detector battery status, detector error status, temperatures of other devices or room, diagnostics, internal temperature, voltage or state of the panel/detector can be attained in this manner. That is, the detector 210 may be commanded or contains internal control to transition between modes without a system trigger. In so doing, the internal detector temperature can be maintained by going between the modes of operation. This requires a feedback loop either internal to the detector or remote to the imaging detector controller 314, computer 316, or workstation 322. In addition, a background process exists to periodically transition the detector between modes to assess information from the detector. That is, the detector could be interrogated by computer 316 or any other external device to read the content of the environmental condition device 506 and then use the retrieved data as a condition for change between the modes of operation. **(emphasis added)**

Yet another reason for holding the claimed invention as statutory is that a useful, concrete, and tangible result is produced. Claims drawn to a long-distance telephone billing process containing mathematical algorithms were held to be directed to patentable subject matter because "the claimed process applies the Boolean principle to produce a useful, concrete, tangible result without pre-empting other uses of the mathematical principle." AT&T Corp. v. Excel Communications, Inc., 172 F.3d 1352, 1358, 50 USPQ2d 1447, 1452 (Fed. Cir. 1999); "[T]ransformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces 'a useful, concrete and tangible result' -- a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades." State Street, 149 F.3d at 1373, 47 USPQ2d at 1601; and Claims drawn to a rasterizer for converting discrete waveform data samples into anti-aliased pixel illumination intensity data to be displayed on a display means were held to be directed to patentable subject matter since the claims defined "a specific machine to produce a useful, concrete, and tangible result." In re Alappat, 33 F.3d 1526, 1544, 31 USPQ2d 1545, 1557 (Fed. Cir. 1994).

Claims 17-25 apply the principle of the environmental condition to produce information about a "variable time interval." In claims 17-25 the determined information can be used by a machine such as a processor to ascertain a possible operating state for a device (radiography detector). Claims 17-25 demonstrate how the information (variable time interval) can be used by a control system (processor) to regulate the operation of a digital radiography detector. Claims 17 and 25 specifically recites implementing the results of the algorithm to accomplish "real-time control of a process." See Diamond v. Diehr, 450 U.S. 175, 209 USPQ 1 (1981).

Rejection under 35 USC § 102

To anticipate a claim under 35 U.S.C § 102 a single source must contain all of the elements of the claim. Lewmar Marine Inc. v. Barient, Inc., 627 F.2d 744, 747, 3 U.S.P.Q.2d 1766, 1768 (Fed. Cir. 1987), cert. denied, 484 U.S. 1007 (1988). Moreover, the single source must disclose all of the claimed elements **"arranged as in the claim."** (emphasis added) Structural Rubber Prods. Co. v. Park Rubber Co., 749 F.2d 707, 716, 223 U.S.P.Q. 1264, 1271 (Fed. Cir. 1984). Moreover, **"[t]he identical invention must be shown in as complete detail as is contained in the ...claim."** (emphasis added) Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 U.S.P.Q. 1913, 1920 (Fed. Cir. 1989). Missing elements may not be supplied by the knowledge of one skilled in the art or the disclosure of another reference. Titanium Metals Corp. v. Banner, 778 F.2d 775, 780, 227 U.S.P.Q. 773, 777 (Fed. Cir. 1985).

Tsujii (U.S. Patent 7, 079, 189) does not anticipate claims 1-6, 9-14, 17-22, 25-31, 34, and 57.

Applicant respectfully traverses the rejection of claims 1-6, 9-14, 17-22, 25-31, 34, and 57 because the Tsujii '189 patent fails to teach or suggest all of the elements of applicant's claims.

The claimed invention is directed to managing a radiography detector so as to regulate the temperature produced and the power consumed by the detector. The temperature or "the heat contributes to an overall rise in temperature with both application and structural effects on the medical device. Structural effects or excessive heat generated by small portable electronic devices reduces battery life, reduces component life, reduces the reliability of the device, and increases device failure." See page 1 of the instant application. Further, excessive heat produced by the electronics in the radiographic detector can "result in patient discomfort or burning."

The invention as claimed (claims 1-6, 9-14, 17-22, 25-31, 34, and 57) employs multiple triggering events so as to automatically change the "operating state of the digital radiography detector." Triggering events can result from activation switch 208 (page 8 of the disclosure), from the system, or from a prediction model (flowchart figures 8-10). The claims specifically recite a "first triggering event," a "second triggering event," and a "determined variable time interval triggering event." All these triggering events are strategically used by the system to regulate the operating state so as to regulate the heat and the power consumed by the "digital radiography detector."

The examiner asserts that the patent to Tsujii ('189) discloses the invention as claimed. In particular, the Examiner asserts that the invention can be primarily found in columns 9 and 10, and figures 4 and 7.

The Tsujii et al. patent does not disclose determining environmental condition data in column 10 and column 11 as asserted by the examiner. The citation asserted by the examiner merely states that one can "adaptively determine the time for stabilization of the sensor offsets." There is no mention or no inference can be drawn to the claimed environmental condition data.

The Tsujii et al. patent does not disclose determining a variable time interval triggering event in the last paragraph of column 10 and the first paragraph of column 10. These paragraphs address factory presets for stabilizing sensor offsets. While Tsujii mentions time within these paragraphs, there is no recitation to a "variable time interval triggering event" that has been determined from the "changed operating state" and the acquired "environmental condition data" of the digital radiography detector.

The Tsujii et al. patent does not disclose changing the operating state of a digital radiography detector based on three triggering events. Tsujii merely discloses different ways that one can provide power to a detector (item 140 at figure 1) and the read out circuitry (item 145 at figure 1). In contrast, the claimed invention after a triggering signal is acquired (switch is flipped for example) changes the state of the detector and waits for a second trigger signal (same or another switch is flipped) or a model based triggering signal to change the state of the detector. The claimed invention dynamically changes the state of the detector so as to manage temperature and battery usage. The following disclosure bears this out (**cited with emphasis**)

The time interval trigger has as a starting point the occurrence of the first triggering signal. The width of the time interval is dependent upon the environmental conditions. For example if the internal temperature is relatively high and close to an upper level, assuming everything else is equal, an increase in power consumption leads to an increase in internal temperature. In this situation, the duration of the time interval should be shortened due to increase temperature consideration. Additionally, there may be a situation were a higher power consumption is not supported by the detector battery capacity so it is prudent to set the time period as close as possible to zero so as to cause a reversion to a lower power consuming state.

Since the Tsujii et al. ('189) patent does not disclose three triggering events, and a process for using these three triggering events so as to automatically change the operating state of a radiography detector the rejection of claims 1-6, 9-14, 17-22, 25-31, 34, and 57 should be withdrawn.

CONCLUSION

Applicant believes this reply is fully responsive to all outstanding issues and places the application in condition for allowance. If this belief is incorrect, or other issues arise, the examiner is encouraged to contact the undersigned at the telephone number listed below.

Dated: December 22, 2006

Respectfully submitted,

By 
Ellis B. Ramirez (45,326)

Marked Up Version Of The Pending Claims under 37 C.F.R. 1.121(c)(1)(ii): In accordance with 37 C.F.R. 1.121(c)(1)(ii), the Applicant submits the following marked up version only for claims being changed by the current amendment, wherein the markings are shown by strikethrough (for deleted matter) and/or underlining (for added matter):

Amendment to the Claims

1. (Amended) A method for regulating the operation of a digital radiography detector comprising:

detecting a first triggering event;

acquiring environmental condition data from digital radiography detector;

automatically changing an operating state of the digital radiography detector based on said detected first triggering event;

determining a variable time interval triggering event from changed operating state of the digital radiography detector and acquired environmental condition data;

detecting a second triggering event; and

automatically changing the operating state of digital radiography detector at the occurrence of either one of a second triggering event and determined variable time interval triggering event.

2. (Amended) A method to regulate the operation of a digital radiography detector according to claim 1, wherein ~~that~~ operating state of digital radiography detector is an off state, standby state, and an on state.

3. (Amended) A method to regulate the operation of a digital radiography detector according to claim 2, wherein an on state causes relative to an off state and a standby state an increase in internal temperature, voltage consumption, power consumption, or battery usage;

wherein a standby state causes relative to an off state an increase in internal temperature, voltage consumption, power consumption, battery usage; and

wherein a change from on state to standby state causes a decrease in internal temperature, voltage consumption, power consumption, battery usage.

4. (Original) A method to regulate the operation of a digital radiography detector according to claim 3, wherein environmental condition data is one of battery status, battery capacity, error status, internal temperature, ambient temperature, operating state, diagnostic data.

5. (Original) A method to regulate the operation of a digital radiography detector according to claim 4, wherein the variable time interval triggering event substantially begins when the first triggering event is detected.

6. (Original) A method to regulate the operation of a digital radiography detector according to claim 5, wherein an end of variable time interval triggering event is based on the operating state of the digital radiography detector and environmental condition data.

7. (Original) A method to regulate the operation of a digital radiography detector according to claim 6, wherein internal temperature exceeding a preselected level and battery capacity below a preselected level causes the determined time interval triggering event to be substantially zero.

8. (Amended) A method to regulate the operation of a digital radiography detector according to claim 1, wherein operating state is internal temperature, voltage consumption, power consumption, or battery usage;

wherein environmental condition data is one of battery status, battery capacity, error status, internal temperature, ambient temperature, and diagnostic data;

wherein the variable time interval triggering event substantially begins when the first triggering event is detected;

wherein end of variable time interval triggering event is based on the operating state of the digital radiography detector and environmental condition data; and

wherein internal temperature exceeding a preselected level and battery capacity below a preselected level causes the determined time interval triggering event to be substantially zero.

9. (Original) A computer-accessible medium having executable instructions to regulating the operation of a digital radiography detector, the executable instructions capable of directing a processor to perform:

detecting a first triggering signal;

acquiring environmental condition data from the digital radiography detector;

changing operating state of the digital radiography detector based on said detected first triggering signal;

determining a variable time interval triggering event from changed operating state of the digital radiography detector and acquired environmental condition data;

detecting a second triggering signal; and

changing operating state of the digital radiography detector at the occurrence of either one of a second triggering signal or a determined variable time interval triggering event.

10. (Original) The computer-accessible medium of claim 9, wherein the operating state of the digital radiography detector is selected from the group of states consisting of an off state, a standby state, and an on state.

11. (Original) The computer-accessible medium of claim 10, wherein the on state causes relative to an off state and a standby state an increase in internal temperature, voltage consumption, power consumption, and battery usage of the digital radiography detector;

wherein a standby state causes relative to an off state an increase in internal temperature, voltage consumption, power consumption, battery usage; and

wherein a change from on state to standby state causes a decrease in internal temperature, voltage consumption, power consumption, battery usage.

12. (Original) The computer-accessible medium of claim 9, wherein the environmental condition data is selected from the group of data consisting of a battery status, a battery capacity, an error status, an internal temperature, an ambient temperature, an operating state, and a diagnostic data.

13. (Original) The computer-accessible medium of claim 12, wherein the variable time interval triggering event substantially begins when the first triggering signal is detected.

14. (Original) The computer-accessible medium of claim 13, wherein an end of variable time interval triggering event is based on the operating state of the digital radiography detector and environmental condition data.

15. (Original) The computer-accessible medium of claim 14, wherein the computer-accessible medium further comprises instructions capable of directing a processor to perform: causing the determined time interval triggering event to be substantially zero when internal temperature exceeds a preselected level and when a battery capacity is below a preselected level.

16. (Amended) The computer-accessible medium of claim 9, wherein operating state is internal temperature, voltage consumption, power consumption, battery usage;

wherein environmental condition data is one of battery status, battery capacity, error status, internal temperature, ambient temperature, and diagnostic data;

wherein the variable time interval triggering event substantially begins when the first triggering signal is detected;

wherein end of variable time interval triggering event is based on the operating state of the digital radiography detector and environmental condition data; and

wherein internal temperature exceeding a preselected level and battery capacity below a preselected level causes the determined time interval triggering event to be substantially zero.

17. (Amended) ~~A computer data signal embodied in a carrier wave and representing a sequence of instructions which, when executed by a processor, cause the processor to perform the method of:~~

A system for regulating the operation of a digital radiography detector comprising:

a processor;

a storage device coupled to the processor;

software means operative on the processor for:

detecting a first triggering event;

acquiring environmental condition data from a digital radiography detector;

automatically changing operating state of digital radiography detector based on said detected first triggering event;

determining a variable time interval triggering event from a changed operating state of digital radiography detector and acquired environmental condition data of the digital radiography detector;

detecting a second triggering event; and

changing the operating state of digital radiography detector at the occurrence of either one of a second triggering event and determined variable time interval triggering event.

18. (Amended) ~~A computer data signal embodied in a carrier wave and representing a sequence of instructions~~ The system of claim 17, wherein operating state of digital radiography detector is an off state, standby state, or an on state, at different times.

19. (Amended) ~~A computer data signal embodied in a carrier wave and representing a sequence of instructions~~ The system of claim 17, wherein an the state causes relative to the off state and the standby state, an increase in internal temperature, voltage consumption, power consumption, and battery usage of the digital radiography detector;

wherein the standby state causes relative to the off state an increase in internal temperature, voltage consumption, power consumption, and battery usage of the digital radiography detector; and

wherein a change from the on state to the standby state causes a decrease in internal temperature, voltage consumption, power consumption, and battery usage of the digital radiography detector.

20. (Amended) ~~A computer data signal embodied in a carrier wave and representing a sequence of instructions~~ The system of claim 19, wherein the environmental condition data is one of a battery status, a battery capacity, an error status, an internal temperature, an ambient temperature, ~~and~~ an operating state, and diagnostic data.

21. (Amended) ~~A computer data signal embodied in a carrier wave and representing a sequence of instructions~~ The system of claim 20, wherein the variable time interval triggering event substantially begins when the first triggering event is detected.

22. (Amended) ~~A computer data signal embodied in a carrier wave and representing a sequence of instructions~~ The system of claim 21, wherein an end of the variable time interval triggering event is based on the operating state and the environmental condition data of the digital radiography detector.

23. (Amended) ~~A computer data signal embodied in a carrier wave and representing a sequence of instructions~~ The system of claim 22, wherein internal temperature exceeding a preselected level and battery capacity below a preselected level causes the determined time interval triggering event to be substantially zero.

24. (Amended) ~~A computer data signal embodied in a carrier wave and representing a sequence of instructions~~ The system of claim 17, wherein the operating state includes internal temperature, voltage consumption, power consumption, and battery usage;

wherein environmental condition data is one of battery status, battery capacity, error status, internal temperature, ambient temperature, and diagnostic data;

wherein the variable time interval triggering event substantially begins when the first triggering event is detected;

wherein end of variable time interval triggering event is based on the operating state of the digital radiography detector and environmental condition data;

wherein internal temperature exceeding a preselected level and battery capacity below a preselected level causes the determined time interval triggering event to be substantially zero.

25. (Amended) ~~A computer data signal embodied in a digital data stream comprising data including manage operation of a medical imaging detector wherein the computer data signal is generated by a method comprising:~~

A system for regulating the operation of a digital radiography detector comprising:

medical imaging detector coupled to a controller;

a processor electrically coupled to the medical imaging detector;

a storage device coupled to the processor;

software means operative on the processor for:

detecting a first triggering event;

acquiring environmental condition data from a digital radiography detector;

automatically changing operating state of digital radiography detector based on said detected first triggering event;

determining a variable time interval triggering event from changed operating state of digital radiography detector and acquired environmental condition data;

detecting a second triggering event;

automatically changing operating state of digital radiography detector at the occurrence of either one of a second triggering event and determined variable time interval triggering event;

wherein an operating state of the digital radiography detector is selected from the group consisting of an off state, standby state, and an on state;

wherein an on state causes relative to an off state and a standby state an increase in internal temperature, voltage consumption, power consumption, battery usage;

wherein a standby state causes relative to an off state an increase in internal temperature, voltage consumption, power consumption, battery usage; and

wherein a change from on state to standby state causes a decrease in internal temperature, voltage consumption, power consumption, battery usage.

26. (Original) An apparatus for regulating the operation of a digital radiography system comprising:

a receiver of a first triggering signal;

a device for acquiring environmental condition data from digital radiography detector;

a device for changing operating state of digital radiography detector based on said detected first triggering event;

a determiner of a variable time interval triggering event from changed operating state of digital radiography detector and acquired environmental condition data;

a receiver of a second triggering event; and

a device for changing operating state of digital radiography detector at the occurrence of either one of a second triggering event and determined variable time interval triggering event.

27. (Amended) An apparatus according to claim 26, wherein operating state of digital radiography detector is one of an off state, standby state, and an on state.

28. (Original) An apparatus according to claim 27, wherein an on state causes relative to an off state and a standby state an increase in internal temperature, voltage consumption, power consumption, battery usage;

wherein a standby state causes relative to an off state an increase in internal temperature, voltage consumption, power consumption, battery usage; and

wherein a change from on state to standby state causes a decrease in internal temperature, voltage consumption, power consumption, battery usage.

29. (Amended) An apparatus according to claim 28, wherein environmental condition data is one of battery status, battery capacity, error status, internal temperature, ambient temperature, operating state, and diagnostic data.

30. (Original) An apparatus according to claim 29, wherein the variable time interval triggering event substantially begins when the first triggering event is detected.

31. (Original) An apparatus according to claim 30, wherein end of variable time interval triggering event is based on the operating state of the digital radiography detector and environmental condition data.

32. (Original) An apparatus according to claim 31, wherein internal temperature exceeding a preselected level and battery capacity below a preselected level causes the determined time interval triggering event to be substantially zero.

33. (Amended) An apparatus according to claim 26, wherein operating state is internal temperature, voltage consumption, power consumption, or battery usage;

wherein environmental condition data is one of battery status, battery capacity, error status, internal temperature, ambient temperature, and diagnostic data;

wherein the variable time interval triggering event substantially begins when the first triggering event is detected.;

wherein end of variable time interval triggering event is based on the operating state of the digital radiography detector and environmental condition data; and

wherein internal temperature exceeding a preselected level and battery capacity below a preselected level causes the determined time interval triggering event to be substantially zero.

34. (Original) An apparatus according to claim 33, wherein the receiver, the device for changing and the determiner are components within a computer.

35. (cancelled)

36. (cancelled)

37. (cancelled)

38. (cancelled)

39. (cancelled)
40. (cancelled)
41. (cancelled)
42. (cancelled)
43. (cancelled)
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51. (cancelled)
52. (cancelled)
53. (cancelled)
54. (cancelled)
55. (cancelled)
56. (cancelled)

57. (Original) A method to manage power consumption of a device to regulate the internal temperature of the device comprising:

receiving an activation signal;

changing said device from an off power consumption state to an idle power consumption state based on said activation signal;

receiving a deactivation signal and a predictor signal;

changing said device upon the occurrence of both received deactivation signal and predictor signal of to an on state power consumption;

changing said device upon the occurrence of the deactivation signal to the off state power consumption;

wherein a change from a standby state to the on state causes an increase in internal temperature, voltage consumption, power consumption, and battery usage of the digital radiography detector; and

wherein a change from a standby state to the off state causes a decrease in internal temperature, voltage consumption, power consumption, and battery usage of the digital radiography detector.